Meeting Notes August 26, 2004
IWIR covering assessments based on Aquatic and Wildlife chronic criteria and *Escherichia coli* criteria
Some of ADEQ's answers have been expanded to provide more information than we were able to during the meeting.

1. Will ADEQ be assessing chronic ammonia in Effluent Dependent Waters (EDWs) or other areas where ammonia is not a standard?

   ADEQ will assess based on applicable standards for that surface water. If ammonia is not a standard for EDWs, the standard will not be applied.

2. Is "chronic" defined in the surface water quality rule?

   A. No, "chronic" is not specifically defined. In the "enforcement" section for enforcement of permitted discharges and nonpoint source discharges, the surface water quality rules indicate that "compliance" with chronic standards will be determined based on a geometric mean of the last 4 samples.

   B. We will consider defining chronic and acute in rule.

3. How do we sample for chronics in lakes – especially chronic ammonia?

   Samples collected by our Lakes Program follow specific protocols. Our Lakes staff works with us during assessments to catch protocol issues with data.

4. How do you work with a geometric mean if the result is 0?

   In surface water quality analysis the result is properly reported as being "less than" the lab detection limit. The result is recorded as "not detected" and the detection limit is noted. When we calculate geometric mean, we use ½ of the detection limit.

5. Why are you not using a geometric mean for chronic criteria?

   For the 2004 assessment, we did not use the geometric mean because standards for many chronic criteria vary by hardness, pH, and temp <u>at the time the sample was taken</u>. We mention this method as it is referenced in the compliance section of Arizona's Surface Water Quality Standards.

6. Why not use a median value for chronic criteria instead of a mean or geometric mean?

   We looked at that too (see June 22 meeting presentation). We are proposing a different way to look at chronic criteria tonight that avoids statistical issues involved with means, medians, and geometric means.

7. In the chronic Aquatic and Wildlife assessment proposal, where did the 1.5 come from to determine a screening value? (Screening value for magnitude could be determined by multiplying the standard by 1.5.)

   The state of Montana uses this value to determine the magnitude of a chronic exceedance. We do not believe it is based on science or statistics, just a rational way to judge magnitude. We are open to other recommendations.

8. Won't toxic spill data lead to false assessments of impairment using this assessment approach for chronic criteria?

   The Impaired Water Identification Rule provides a clear way for ADEQ to handle spill data. If it is cleaned up or is actively being remediated, that data is handled separately and will not lead to a listing. However, listings will occur if there is a persistent pollutant not being addressed through remediation.

9. What if you have exceeded the standard but not the Practical Quantification Limit (PQL)? The labs cannot really test that low, so is it really a violation?
    A. As defined in the IWIR, assessments are determined on exceedances above the lab reporting limits. As the PQL is below the reporting limit, analysis below the PQL should not be an issue.
    B. Mercury is one of the few parameters routinely monitored where this might be an issue. Generally, we rely on "clean sampling" techniques to be able to test low enough.

10. How many other states are using supporting evidence of chronic criteria exceedances?
    We are aware of Montana, Kansas, and a couple of other states looking for such supporting evidence. However, we did not talk to all of the states about this, so there might be a few more.

11. Is ADEQ looking for ways to monitor in a way that would better support identifying chronic criteria? For example, a chronic criteria exceedance could trigger more intensive monitoring.
    Yes, this was one of the purposes of ADEQ's "targeted team;" however, severe budget constraints have not allowed this team to be fully activated. Also, 40% of the data comes from other agencies, and therefore, it might be 2 years from when the data was collected until ADEQ would receive the data. Monitoring would occur after that. Limited field staff and monitoring resources are a challenge for ADEQ.

12. Are listed surface waters ever determined to not be impaired? Are you trying to fix an assessment process that actually is working pretty well as far as listing errors?
    A. As indicated in our assessment reports, after TMDL investigations were initiated, ADEQ has delisted four lakes due to natural background (turbidity, low dissolved oxygen, and fluoride). Delistings are also being recommended on two stream reaches due to naturally occurring high levels of turbidity in sandstone formations.
    B. Many waters are delisted due to changes in standards (e.g., beryllium, turbidity).
    C. During the TMDL investigation at mining sites, it is not unusual to add or drop metals from the list.
    D. One issue now is whether the chronic criteria assessment method that we used for the first time in 2004 is appropriate. We have not yet conducted further investigation of these listings.
    E. Another issue is that EPA adds more surface waters to our 303(d) List. This invalidates our assessment report and our listing, and causes a lot of confusion to entities who must determine if their projects might impact impaired waters (US Forest Service, BLM, ADOT, stormwater permits, etc). Therefore, we are looking for ways to adjust some of our assessment criteria to be in line with federal assessment guidance.

13. Don't let EPA drive decisions. Just because EPA says they might "over file" if there is more than 1 exceedance of a chronic criteria (EPA assessment criteria), does not mean that we must adopt this as Arizona's assessment criteria.
    We agree. We want to establish assessment criteria that we can justify. EPA will do as they may. We continue to work with all of our stakeholders, including EPA to establish appropriate assessment criteria.

14. Do you use volunteer monitors? The Master Watershed Program is training people to do monitoring through the Univ. of Arizona and Gateway College.
    A. Yes, we are actually funding that training program and are very excited about the opportunities it presents.

B. ADEQ is also aware that monitoring by volunteer groups will take a lot of oversight so that the data meets credible data requirements. ADEQ intends to provide that oversight so we can use the data for assessments.
C. Currently there are only a couple of volunteer monitoring efforts in the state.

15. How many states apply chronic criteria to Effluent Dependent Waters or ephemeral waters?
    A. We did not specifically ask that type of question. None of the states indicated that they applied chronic assessment criteria differently in such waters, so one could assume that they applied them to all waters.
    B. We do not apply chronic criteria to ephemeral waters.

16. If CALM and other EPA guidance indicates impairment is >1 exceedance in 3 years, what do they say it takes to <u>delist</u>?
    A. EPA does not provide specific guidance about delisting.
    B. For attainment after an exceedance has occurred, we generally look for 0 exceedances in 3 years.
    C. If listed, we would want the monitoring to occur under the same critical conditions (e.g., high flow or low flow) when exceedances originally occurred.
    D. The TMDL should establish load reductions to meet surface water quality standards and identify critical conditions when exceedances are occurring.

17. How do you assess ephemeral streams that receive effluent discharges, if they are not designated as an Effluent Dependent Water (EDW) in the Surface Water Quality rules?
    A. Assessments are done on the actual designated uses assigned to the surface water. ADEQ will be updating surface waters receiving effluent discharges as EDWs in the 2006 Triennial Review.
    B. Our staff monitors major dischargers located on streams and lakes established as EDWs, but we lack the resources to monitor all dischargers. Therefore, in the last 15 years ADEQ has never received instream water quality data on the waters in question.

18. What was the chronic assessment criteria used for the last assessment?
    Greater than 1 sampling event exceeding standards during the monitoring period (5 years) was impaired.

19. Why are you using >1 exceedance in 3 years for *E. coli*?
    We are treating *E. coli* the same as a toxic parameter. Short term exposures (less than an hour) can result in an illness, especially when over the standard.

20. What species generate *E. coli*? If it is primarily from wildlife and domestic animals, is it still a problem?
    A. All types of mammals can produce *E. coli*, and humans can become ill due to *E. coli* produced by other animals.
    B. *E. coli* is an indicator of fecal contamination, so where it is detected, other illness producing protozoans, bacteria, and viruses are likely present.

21. How do you factor in natural background for *E. coli?*
    A. We were trying to address that through our wet weather exclusion proposal (in areas relatively remote from humans, removed from recreation, and where no regulated discharges occur – including nonpoint source discharges).
    B. However, as stakeholders pointed out, even if only a few people are present, if they get in the water, they are at risk.

22. What is natural? What if human activities are attracting more wildlife (e.g., garbage attracting some critters – Oak Creek)? What if the natural resource agency is promoting more wildlife for hunting?

A. Defining what is natural can be difficult. Basically, we consider it is natural if no human activities are involved. The examples of garbage attracting animals or resource agencies promoting wildlife shows how subtle the determination of anthropogenic influence can be. Once we are aware of these influences, ADEQ would not consider them "natural" background.

B. For assessments, natural conditions have been used in the past for:

1. Turbidity in pristine areas with sandstone formations and cattle exclusions,
2. Naturally elevated fluoride in springs feeding into a lake,
3. Low dissolved oxygen in streams where ground water upwelling is the major source of water for the stream in that section, as ground water is naturally low in dissolved oxygen. We do not apply this if there are elevated nutrients or other indications that anthropogenic activities may be involved.

23. Why are we looking at *E. coli*? Should we be looking at other organisms to try to differentiate between human, wildlife and domestic animals?

A. See discussion in 20 and 21.

B. *E. coli* is recognized as a better indicator for potential human illnesses than previous indicators (fecal coliform or total coliform).

C. Fecal coliform was a subset of the big family – total coliform. *E. coli* is a subset of the family fecal coliform.

24. Are any states applying bacteria standards to storm events?

A. Yes. They apply them to storm events.

B. As discussed in the presentation, some states are developing intermittent site-specific standards so that the *E. coli* standard is not applied during certain high level storm flows. But this requires a Use Attainability Analysis (UAA) through the standards development process.

C. In the presentation on 8/26/04, we looked at possible criteria for excluding wet weather exceedances from listing, but this might not be appropriate based on feedback from stakeholders present at the meeting.

25. How many states assess ephemeral and Effluent Dependent Waters?

It is an interesting question, but one that we did not ask. I expect that some of the states would have noted that they were only applying standards to specific types of waters if that was the case. We believe that Florida does not assess the few ephemeral waters that it has.

26. Doesn't Oak Creek close its swimming area if there is a problem with *E. coli*? If you know the source, what is the concern here?

A. Yes, they close the swimming area at Slide Rock State Park, but they cannot close the whole creek and prevent people from swimming in other areas. Continuing investigations have now shown that the area where exceedances are occurring goes much further than the swimming area at Slide Rock State Park. Therefore, there is still a potential health risk.

B. Although the sources at Oak Creek have been identified, we have not been able to resolve the problem. We are reopening the TMDL and hope to learn even more about sources, extent of contamination, and critical conditions. From that information we hope to develop better strategies for reducing *E. coli* loading and for providing public notification.

27. Is the 303(d) listing criteria the same as the swimming area closure criteria? Do all states have common criteria?

A. ADEQ does not close swimming areas; closures are the responsibility of county health departments and land management agencies. Generally they use our criteria. Closures are usually based on exceedances of our single sample maximum standard, but may require a confirmation sample (depending on how high the first sample was).

B. States do not all have the same bacteria standards or the same assessment criteria. Criteria for closing beach and swimming area are probably also not the same.

28. If you use >1 exceedance in 3 years, why wouldn't 1 exceedance at 3 different sites (within 3 years) be an exceedance?

A. We are proposing that data collected within a large reservoir with distant sites be reviewed differently. Where sample sites are many miles apart and in different bays, we think assessments should be made separately, so that each site is actually representing that bay area. Only 1 exceedance at that site is "inconclusive," but not impaired. However, two exceedances at a site within three years would be impaired.

B. If only one site is impaired, we would generally list the whole lake. However, it is possible to list only a bay. We listed Thompson Bay at Lake Havasu after several years of investigation, rather than the whole lake.

29. For *E. coli* single sample maximum assessments, is there a minimum sample size?

Yes. At least 2 sampling events (2 samples) within a 3-year period to make a listing as impaired. Therefore, it would take at least 3 sampling events over a 3-year period to determine that it was attaining its uses.

30. Can we defend Wet Weather Exclusions just because it is not in or near a populated area? Aren't people still at risk?

A. We would need a large amount of evidence, not simply evidence that the site was in a remote location.

B. This idea might not be appropriate if we cannot agree on criteria that protects the environment and public health.

31. Would we get a Wet Weather Exclusion in a populated area if we can demonstrate that the area is not used for recreation, swimming, etc.? Isn't all stormwater loaded with *E. coli*, especially first flush? Why list waters if exceedances may be due to first flush? Why bother doing a TMDL, aren't the stormwater programs trying to manage these issues?

A. ADEQ is going to have a lot harder time defending an exclusion in or near a populated area because of the potential for people to get in the water – even an EDW.

B. The TMDL and TMDL implementation plan would be aimed determining potential sources, including urban stormwater, and would determine if other actions can be taken to reduce loadings.

C. Yes, first flush especially is generally loaded with bacteria, which is why we were looking for a way to establish criteria for excluding some of these exceedances. But we also must protect public health.

32. Are municipalities sampling stormwater flows for bacteria contamination as part of their stormwater permitting requirements? Is ADEQ using that data?

A. Water quality storm water data collected in the "pipe" before it gets to the stream or lake cannot be used to assess surface water.

B. For assessments, only instream data is considered.

33. Through the Triennial Review process, ADEQ is proposing merging Full Body Contact and Partial Body Contact criteria into a recreational contact use. How will this affect the *E. coli* standard? Are you dropping the higher PBC bacteria standard?

This is a preliminary proposal. We have not heard what the new standard would be. The soonest the new standard would apply is the 2008 assessment.

34. Where did you come up with the 1.3 screening value for *E. coli*? Why not multiply the standard by 1.5, using the same screening value proposed for the chronic A&W criteria?

A. In the last assessment we talked to the State Lab about the reliability of the Most Probable Number results. (If result is 240, at a 95% confidence level, the result is between 100 and 940.) We decided that for Full Body Contact standard set at 235, the screening value would be 300. It was a best professional judgment call. Multiplying the 235 standard by 1.3, results in 300 CFU. We are open to recommendations.

B. *E. coli* is an indicator of potential acute problems (water borne illnesses) so using the higher screening value (1.5 for chronic A&W criteria) may not be justified.

35. Please include a list of people attending the meeting in your email wrap up of this meeting.

A. Included with e-mail.